Written homework #12

1a) chi-square test of independence

1b) condition 1: the data is in counts, so this condition is met

condition 2: each expected count should be at least 5.

1c) (H_0): there is no relationship. (H_1) there is a relationship. between type of treatment and reading

$(x^2) = 0.743$
P-value $= 0.3892$

1d) $\begin{bmatrix} 12 & 8 \\ 73 & 91 \end{bmatrix}$ df = (rows − 1)(columns − 1) = (2−1)(2−1) = 1 → degrees of freedom

1e) $\begin{bmatrix} 10.79.3 \\ 76.3 & 89.7 \end{bmatrix}$ 1f) p-value: (0.3892) is greater than 0.05

2a) 159 + 198 + 176 + 149 = 680 $\frac{680}{4} = 170$

2b) chi-square goodness-of fit test

2c) (H_0) the drink preferences are equally distributed (H_1): the drink preferences are not equal

2d) list 1: 159, 198, 176, 149 list 2: 170, 170, 170, 170

test statistic (x^2): 3.439 | p-value: 0.3310

2e) p-value (0.3310) is greater than 0.10.